Into The Great Unknown

An Exploration Into The Future Of Today's OSes

What does the future hold for the operating systems that you love—and the ones you love to hate? We looked into our crystal ball and took a trip to the rumor mill to glean what's in store for Windows, Linux, and Mac OS. What we found is intriguing, but remember that the operating systems of the future are still being designed, so these predictions should be taken with a grain of salt. Make that a big scoop of salt. Until these OSes are officially released, anything could happen.

Linux

There's some debate whether the new Linux kernel will be called version 2.6 or 3.0, but there's no argument that by either name, the next kernel upgrade will be packed with new features. Users will appreciate support for more devices, including USB 2.0, AGP 3.0 video cards, PC Cards, and Zoom video.

A feature called User-mode Linux will let you run Linux under Linux, VMware-style, making processes invisible to others. If you do a lot of beta testing or product reviews, User-mode Linux can keep your main system safe from misbehaving software. It can also mean improved security, as you can run a server in User-mode Linux, preventing anyone who breaks in from getting to your main system.

The new version will support more filesystems, including compressed, JFS, zerocopy NFS, and read-only ones (squashfs, cramsfs, and perhaps ramfs and libfs). LVM2 and EVMS will provide storage management. The SCSI subsystem will see improvements, and the IDE/ATAPI CD-ROM subsystem will no longer need to emulate SCSI hardware for the purposes of writing to CDs. Packet writing will allow for burning CDs in bits and pieces. There will be improvements to the virtual memory system and console/TTY subsystem. Look for plenty of features for developers and kernel hackers, too. The Linux Trace Toolkit will let programmers trace what the kernel is doing step-by-step as it interacts with their code.

Thread-aware core dumps will also make debugging easier. When the kernel or a Linux app has a massive failure, it "dumps core," saving everything in its memory into a huge file. Thread-aware core dumps let programmers narrow down what's happening in each individual thread. A new kernel configurator, kconfig, will make it possible to reconfigure a kernel before utilizing a GUI interface that's more flexible than the old console configuration routines. Thanks to a multipane GUI, kernel hackers will be able to see help data by clicking an option rather than opening new windows.

There isn't an official release date for the new kernel, but Linus Torvalds has said possibly around June. You can take your chances with the new kernel's beta via download at www.kernel.org.

Dig Deeper

Want more insider information, rumors, and fanatical speculation about your favorite operating system? Here are a few sites to check out:

Linux:
- Kernel Traffic mailing list; kt.zork.net/kernel-traffic
- The Linux Kernel Archives; www.kernel.org
- LWN.net; www.lwn.net

Mac OS:
- Mac OS Rumors; www.macosrumors.com
- SpyMac; www.spymac.com
- Think Secret; www.thinksecret.com

Windows:
- Paul Thurrott's SuperSite for Windows; www.winsupersite.com
- NeoWin.net; www.neowin.net
- WinBeta; www.winbeta.org

General:
- BetaNews; www.betanews.com
- OSNews; www.osnews.com
- Slashdot; www.slashdot.org

Mac OS

Of the three major operating systems, the future of Mac OS X is probably shrouded with the greatest mystery. Apple refuses to comment about upcoming OS releases, and the Mac rumor sites have precious little information about future versions of OS X. That's just how Apple wants it.

"Apple is incredibly militant about information leaks these days, to the point of keeping most secrets from other parts of the company. If the wrong thing gets out, it's a firing offense," says Adam Engst, publisher of the Mac newsletter TidBITS (www.tidbits.com).

Here's what is known: Version 10.3 is code-named Panther, continuing in Apple's tradition of feline-related names for OS X. (Version 10 was Cheetah, 10.1 was Puma, 10.2 was Jaguar, and 10.2 Server was Tigger.) Panther is expected to ship sometime this year, perhaps around July.

A change to new Apple computers sold this year prevents them from booting directly into OS 9, dubbed Classic. But it is rumored that there is improved support for running Classic applications within Panther, with better access to peripherals and a seamless interface that is more consistent with OS X's Aqua look. It's expected that an OS X preferences panel dedicated to Classic controls will eliminate and replace Classic's menu bar and control panels.

Insiders expect that Panther will include low-level performance optimizations that should speed up all applications. Pre-emptive multithreading is expected to be more widely used in the Finder. Installing hardware drivers could also become easier, as Panther's software update system may be expanded to download and install drivers for more third-party USB and FireWire peripherals.

Panther may also bring a new application: a free version of the AppleWorks word processor that's compatible with Microsoft Office files. Although the program may be included with Panther, a subscription to Apple's .Mac service may enable extra features.

Low-level security features are planned to keep viruses and other nastiness at bay. Any suspicious activity in server processes, BSD processes, and kernel extensions will be suspended and reported to the user, who will be able to kill or resume the suspect process.

More wild-eyed predictions say that Panther may support 64-bit processors or even run on x86 systems, and that it may improve support for clustering, or using several computers together for one task. These features may indeed be coming, but probably not as part of Panther.

Many users expect future OS X releases to be evolutionary, as the relatively young operating system matures. "Apple just had their revolution, and it's going to take 150% of their available resources to actually carry it through to success. I think that their biggest problems are going to be actually arriving at square one," says David Adams, publisher of the OSNews Web site (www.osnews.com). "I personally think that Apple's next revolution will be one they take on quite unwillingly: finding a new processor to build their next generation of computers with. Depending on their choice—Intel, for example—it could take a huge engineering effort to pull it off."

Windows

The future of Windows is somewhat less mysterious, as leaks, rumors, and screen shots of Microsoft's nascent operating systems are plentiful. Three Windows operating systems may be coming to a PC near you in the middle future: Windows XP Second Edition; followed by Longhorn, the next major upgrade to the desktop OS; and Blackcomb, the next server OS.

The first out of the gate would probably be Windows XP Second Edition, which, if it exists, could ship late this year. Rumormongers expect that XP SE will be a fee-based upgrade that could include Internet Explorer 7 and DirectX 9, plus perhaps a few features from Longhorn that are ready early. But Microsoft has denied that there will be an XP Second Edition at all.

Most of the buzz concerning the future surrounds Longhorn, which Microsoft has called the next major version of Windows. Longhorn is expected to feature interface changes, a powerful new file system, and support for Palladium "trusted computing" security technology. Longhorn is also expected to include built-in DVD burning tools. Currently in early alpha testing, Longhorn won't ship until late 2004 or in 2005.

The future OS' interface tweaks are expected to include a new visual style, dubbed "Plex," and the addition of the Sidebar, a customizable, XML-based dock. The Sidebar is built from movable "tiles" that can fetch information from the PC or the Internet. A new 3D system is anticipated to further change the system's look, allowing for full-motion video from the Windows interface. Screen shots of Longhorn from an early alpha release resemble WinXP with new technologies grafted on. Both the interface and infrastructure are likely to undergo major changes before the official release.

WinFS (Windows Future Storage) is the name of the new file system, built on a SQL database. WinFS will provide new ways to sort and search information and allow for a new "preview view" that serves up detailed information about files.

"It seems that most of Microsoft's efforts will continue to go to leveraging its OS dominance to establish lucrative footholds in other markets, like Web services," says Adams.

In the realm of server OSes, Microsoft is expected to release Windows .NET Server 2003, its follow up to Windows 2000, in April. There will be four versions including Datacenter for mission-critical corporate servers and a version dedicated to low-end Web servers.

Looking further into the future: Blackcomb, the codename for the next major Windows server release, isn't expected until after Longhorn ships, perhaps as late as 2006. Microsoft has scrapped plans to release a server version of Longhorn. CPU

by Kevin Savetz